

L 14169-66 EWP(j)/EWT(m)/ETC(m)-6/T/EWP(v) RM/WW

ACC NR: AP6003940

SOURCE CODE: UR/0374/55/000/005/0058/0065

AUTHOR: Trostyanskaya, Ye. B. (Moscow); Poymanov, A. M. (Moscow);  
Babayevskiy, P. G. (Moscow) 80  
15

ORG: none

TITLE: Causes of strength difference in plastics with mineral powder fillers 15

SOURCE: Mekhanika polimerov, no. 5, 1965, 58-65

TOPIC TAGS: ~~phenolic plastic~~, phenolformaldehyde, silicon plastic, fiberglass, resin, filler, ~~hardening~~, plastic strength, ~~thermostability~~, mineral, ~~heat stability~~ 55

ABSTRACT: The effect of mineral powders used as fillers on the rate and depth of the hardening of phenolformaldehyde and silicone resins has been investigated. It has been shown that the degree of this effect depends on the composition of the powder filler and on the method of its preliminary preparation. The fillers usually are the inhibitors or the catalysts of the hardening process. The fillers catalyzing the hardening process increase the strength and thermostability of plastics. Such fillers, introduced in small quantities into resins and used as binders for fiberglass plastics, level the speed and depth of hardening and increase the strength and the heat stability of plastics. Orig. art. has: 144 15

Card 1/2

UDC: 678:539.4.019

L 14169-66

ACC NR: AP6003940

3 figures and 5 tables. [Based on author's abstract].

SUB CODE: 11/ SUBM DATE: 26Dec64/ ORIG REF: 003/ OTH REF: 002

Card 2/2

TROSTYANSKAYA, Ye.B.; NEFEDOVA, G.Z.

Insoluble polyelectrolytes with mobile functional groups.  
Vysokom.sood. 7 no.10:1767-1770 0 1965.

1. Institut chistykh reaktivov i osobe chistykh khimicheskikh  
veshchestv. (MIRA 18:11)

L-62955-65

ACCESSION NO. 45010000

678.744, 3.01:539.4:66.085.5

AUTHOR: Vinogradov, V. M.; Neverov, A. N.; Bocharnikov, V. K.

SOURCE: Plasticskiye massy, no. 2, 1965, 29-31

TOPIC TAGS: gamma radiation, polymerization, hardening, polyester plastic, polymer

ABSTRACT: The purpose of this work was to increase polymerization of polyesters in the presence of initiators by radioactive interaction. To establish the possibility of improving hardening of pressed parts from unsaturated polyesters, cast specimens were produced. They were hardened with benzoyl peroxide (1%) with the addition of dimethylaniline (0.010%) at room temperature and then heated to 150°C. At 150°C the reaction was completed in 6 hours when the physical and mechanical properties of the polymer reach a maximum. The following polymers were studied: polyacrylate KGP-9, polymaleinate PN-1 + styrene, polymaleinate + polyacrylate, polymaleinate + polyacrylate + styrene. The optimum properties of polymers were exhibited when they were irradiated with 9-25 Mrad doses.

L 62955-65

ACCESSION NR: AP5019568

ASSOCIATION: none

SUBMITTED: 00

NO REF SOV: 005

ENCL: 00

OTHER: 006

SUB CODE: MT, NP

*llc*  
Card 2/2

E 65219-65

EPA(s)-2/EMM(m)/EPP(s)/EHP(v)/EWP(v)/EWP(v)

010.03210/0.043'42'54678.664:678.046.36

SOURCE: Plasticheskiye massy, no. 1, 1965

KEYWORDS: reinforced plastic, glass film, epoxy plastic

ABSTRACT: The processability and mechanical properties of glass-film reinforced plastics have been studied in view of the absence of data on such plastics. It is noted that the use of glass film as a reinforcing material is a promising way of increasing the rigidity and strength of plastics.

The solvent from the "prepreg" was removed by means of a vacuum pump. After elimination of the solvent from the "prepreg," the lay-up was carried out in molds. Molding pressure did not exceed 10 kg/cm<sup>2</sup>. The original article gives data on the mechanical properties of the end products in tabular form and compares them with such data for conventional glass-fabric reinforced plastics. The glass-film reinforced plastics

Card 1/2

L 65219-65

ACCESSION NR: AP5022229

0  
were somewhat denser, and substantially more rigid and stronger. Their modulus of elasticity in bending and compressive strength exceeded those of the glass-fabric reinforced plastics by a factor of 2-4. A feature of the new materials is the low resin content in the new materials. The effect of glass type on the mechanical properties is also



L 20375-66 EWT(d)/EWT(m)/EWP(v)/EWP(j)/T/EWP(t)/EWP(k)/EWP(h)/EWP(l)/ETC(m)-6

ACC NR: AP6006541 JD/WW/ (A) SOURCE CODE: UR/0191/65/000/011/0022/0027  
HM/RM

AUTHORS: Trostyanskaya, Ye. B.; Komarov, G. V.; Shishkin, V. A.

ORG: none

TITLE: Joining of hardened plastics by the method of chemical welding, 6

SOURCE: Plasticheskiye massy, no. 11, 1965, 22-27

TOPIC TAGS: polymer, plastic, ultrasonic welding, welding technology, weld evaluation, adhesive bonding

ABSTRACT: The object of the investigation was to test currently held theories on, and to study the optimum conditions for, chemical welding of hardened plastics. The welding was accomplished by a high-frequency (1.3 Kwt, 20-Kcycle) welding installation and ultrasonic welding, installation of type UZP-1 utilizing a generator of type UZG-10. Microsections of the welds, prepared after V. M. Guterma, A. M. Kogan, and M. M. Kotina (Plast. massy, No. 4, 58, 1960), were investigated by microphotography. The weld strength of the various welds was determined, and the increase in temperature in the weld during welding was measured. The experimental results are presented graphically (see Fig. 1), and a table in which the strength

Card 1/2

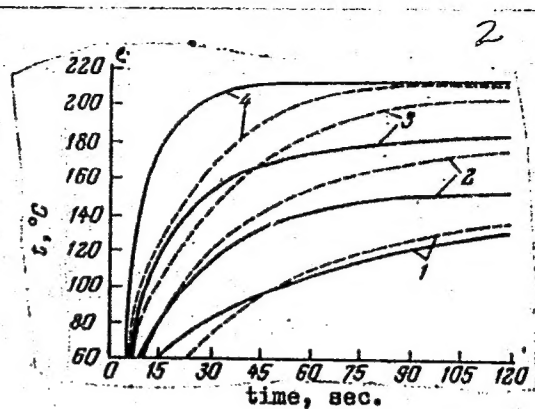
UDC: 678.029.43



L 20375-66

1 A: AP6006541

Fig. 1. Rate of temperature increase in the weld during the high-frequency welding of the glass-textolite KAST-V of 1.5 mm thickness (area of weld 3 cm<sup>2</sup>) and 6 mm (area of weld 8 cm<sup>2</sup>). Field strength: (—) KAST-V, 1.5 mm thick: 1 - 2.0 kv/cm; 2 - 2.9 kv/cm; 3 - 3.0 kv/cm; 4 - 4.4 kv/cm. (-----) KAST-V, 6 mm thick: 1 - 1.25 kv/cm; 2 - 1.75 kv/cm; 3 - 2.0 kv/cm; 4 - 2.5 kv/cm.



of welded and glued bonds is compared is presented. It is concluded that at room temperatures welded bonds are of the same strength as glued bonds and are superior to the latter at high temperatures. Orig. art. has: 1 table and 9 graphs.

SUB CODE: 1311/ SUBM DATE: none/ ORIG REF: 016/ OTH REF: 008

Card 2/2 vmb

TROSTYANSKAYA, Ye.B.; POYMANOV, A.M.; SKOROVA, A.V.

Chemical reactions on the surface of glass fibers used for  
the production of glass reinforced plastics. Plast. massy  
no.11:67-69 '65. (MIRA 18:12)

L 16510-66 EWT(m)/EWP(v)/EWP(j)/T/ETC(m)-6 WW/RM

ACC NR: AP6001494

(A)

SOURCE CODE: UR/0191/65/000/012/0012/0014

AUTHORS: Trostyanskaya, Ye. B.; Venkova, Ye. S.; Pavlova, A. P.

ORG: none

TITLE: Structural plasticization of epoxide resins

SOURCE: Plasticheskiye massy, no. 12, 1965, 12-14

TOPIC TAGS: epoxy plastic, plasticizer, copolymer, adhesive / ED-6 epoxide resin

ABSTRACT: This article deals with the preparation of phorylic resins (molecular weight of 400—600) by polycondensation of monophenylphosphate dichloroanhydride with resorcinol (I), hydroquinone (II), p,p'-dihydroxydiphenylmethane, and p,p'-dihydroxydiphenylisopropane according to a method described earlier (U. S. Pat. 2616873; Brit. Pat. 679834). Preparation and properties of bulk copolymer obtained by addition of I or II to epoxide resin ED-6 are also described. The work was undertaken in order to improve the impact strength and adhesive properties of polyepoxides. It was established that phorylic resins in bulk polymers function as structural plasticizers, considerably increasing impact and tensile strength of cast products and of adhesive films, at the same time lowering their

Card 1/2

UDC: 678.644.12'5:678.049

L 16510-66

ACC NR: AP6001494

glass point. Addition of dicyandiamide (III) enhances both properties, as can be seen in Fig. 1.

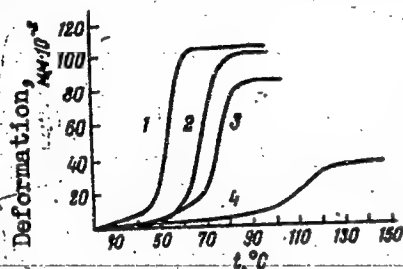


Fig. 1. Glass point of cured block polymers from epoxide and phorylic resins and epoxide resin cured with dicyandiamide:  
1 - bulk polymer from ED-6 and II, cured at 160C for 12 hours; 2 and 3 - bulk polymer from ED-6 and II, cured with III (2-III added after 4 hours heating of ED-6 with II at 160C ; 3 - III added to the mixture of ED-6 and II at the start); 4 - ED-6 cured with III.

Orig. art. has: 3 tables, 3 figures, and 1 structure.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 004

Card 2/2 SM

TROSTYANSKAYA, Ye.B.; NEFEDOVA, G.Z.

Insoluble polycomplexons. Zhur. anal. khim. 20 no.8:775-780  
'65. (MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh  
reaktivov i osobo chistykh khimicheskikh veshchestv, Moskva.

I 9221-66 EWT(m)/EMP(v)/T/EMP(j)/EMP(k)/ETC(m)		WW/RM
ACC NR: AP6000971	SOURCE CODE: UR/0286/65/000/022/0056/0056	
INVENTOR: Trostyanskaya, Ye. B.; Komarov, G. V.; Shishkin, V. A.		
ORG: none		
TITLE: Bonding cured glass-reinforced plastics. Class 39, No. 176388		
SOURCE: Sulleten' izobreteniy i tovarnykh znakov, no. 22, 1965, 56		
TOPIC TAGS: glass, reinforced plastic, chemical bonding, unsaturated polyester, polymerization		
ABSTRACT: An Author Certificate has been issued for a method for bonding glass-reinforced plastics based on unsaturated polyesters or other binders which can be cured by additional polymerization. The method involves coating of the surfaces to be bonded with a monomer (e.g., styrene) solution with added polymerization initiator, joining of the surfaces, and high-frequency or ultrasonic heating.		
SUB CODE: 11/	SUBM DATE: 24Sep62/	ATD PRESS: 4158
Card 1/1	UDC: 678.744.3-134.622.029.42:621.3.023	

1. 7987-66 EWT(m)/ENP(j) RM  
ACC NR: AP5026525 SOURCE CODE: UR/0286/65/000/019/0069/0069  
AUTHORS: Trostyanskaya, Ye. B.; Shishkin, V. A.; Golovkin, G. S.; Komarov, G. V.  
ORG: none  
TITLE: A method for vulcanizing. Class 39, No. 175221  
SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 119, 1965, 69  
TOPIC TAGS: vulcanization, rubber, monomer, initiator  
ABSTRACT: This Author Certificate presents a method for vulcanizing. To increase the strength and thermal stability of the union, the surfaces of the junction are covered with a mixture of a proper monomer and an initiator or with a vulcanizing agent. The surfaces are then brought into contact with one another, and the zone of contact is heated intensely.  
SUB CODE: IE/ SUBM DATE: 05May64  
Card 1/1 UDC: 678.7:621.792.05



L 20382-66 EWP(e)/EWT(m)/EWA(d)/EWP(j)/T/ETC(m)-6 WW/RM/WH

ACC NR: AP6006550

(A)

SOURCE CODE: UR/0191/65/000/011/0067/0069

AUTHORS: Trostyanskaya, Ye. B.; Poymanov, A. M.; Skorova, A. V.

92

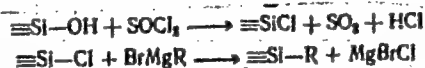
B

ORG: none

TITLE: Chemical reactions on the surface of glass fibers used in the manufacture of fiber-glass plastics,

SOURCE: Plasticheskiye massy, no. 11, 1965, 67-69

TOPIC TAGS: fiber glass, polymer, epoxy plastic, silicon quartz, surface active agent, glass fiber, silicon, glass, quartz, chemical reaction, surface ionization  
ABSTRACT: It was the object of this investigation to find suitable conditions for the modification of surfaces of glass, silicon, and quartz fibers.<sup>15</sup> The modification was carried out by the chemical addition of organic radicals to the surface, according to the schemes



and

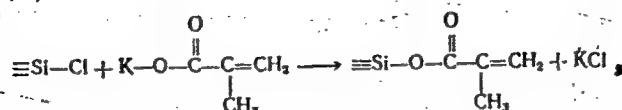
Card 1/2

UDC: 666.189.211:677.862.5

2

L 20382-66

ACC NR: AP6006550



where R = trimethylsilane, allyl, ethyl, phenyl, or methacryl respectively. The contact angle of wetting and electrical surface conductivity of the modified surfaces were determined after the method of Ye. B. Trostyanskaya, A. M. Poymanov, and Yu. N. Kazanskiy (Plast. massy, No. 7, 1964). The experimental results are tabulated. It was found that substitution of mono- and divalent ions by tri- and tetravalent ions on the modified surfaces enhances the hydrophobic nature of the latter and eliminates the retarding action of the surface hydroxyl groups on the rate of hardening of polycondensation type binders, thus improving the qualities of the fiber-glass plastics. Orig. art. has: 3 tables and 4 equations.

SUB CODE: 11/

SUBM DATE: none/

ORIG REF: 008/

OTH REF: 007

Card 2/2 vmb

L 20406-66 EWT(m)/EWP(j)/T/ETC(m)-6 WW/RM

ACC NR: AP6008402

(A)

SOURCE CODE: UR/0374/66/000/001/0067/0073

AUTHOR: Trostyanskaya, Ye. B.; Novikov, V. U.; Kazanskiy, Yu. N.

ORG: Moscow Aviation Technological Institute (Moskovskiy aviatsionno-tekhnologicheskii institut)

TITLE: Effect of increased temperatures on the strength of solidified resins and of materials of the same base. 1. Effect of increased temperatures on the strength of solidified phenolformaldehyde resins

SOURCE: Mekhanika polimerov, no. 1, 1966, 67-73

TOPIC TAGS: resin, phenolformaldehyde, temperature dependence, tensile strength, compressive strength, thermal effect

ABSTRACT: An investigation of changes in tensile strength and of weight diminution in phenolformaldehyde resins was carried out under high temperature conditions. It was revealed that a spontaneous transition from the first to the second and third structural stages takes place with concomitant increase in the stabilization of strength properties in the process of thermal destruction. In all the resins investigated and for every structural stage, the direct dependence between the relative change of ultimate compression strength and the relative change of weight were established irrespective of the conditions of thermal treatment. The investigation was carried out on standard samples obtained by molding a mixture of hardened resin and powder of the same, but preliminarily hardened, resin. Samples produced in this

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UDC: 678.539.4.019.3

L 20406-66

ACC NR: AP6008402

way have better physical and mechanical properties in comparison with articles made of molding powders with an inactive filler. The lowest weight diminution in the process of transition from one stage to another is typical of the phenolic-furfural-formaldehyde resins, and the highest degree of strength retention is typical of the phenolic-aniline-formaldehyde resins. Orig. art. has: 9 figures and 2 tables. [Based on authors' abstract.] [NT]

SUB CODE://,20/ SUBM DATE: 16Feb65/ ORIG REF: 009/ OTH REF: 008/

Cord 2/2 BK

L 35857-66 EWT(m)/EWT(i)/T IC-(c) NW/RM  
 ACC NR: AP6023429 SOURCE CODE: UR/0190/66/008/007/1219/1225  
 AUTHOR: Trostyanskaya, Ye. B.; Venkova, Ye. S.; Aristovskaya, L. V.  
 ORG: Moscow Aviation Technology Institute (Moskovskiy aviatsionnyy tekhnologicheskii institut)  
 TITLE: Polycondensation of tris(hydroxymethyl)phosphine oxide with phenols  
 SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 7, 1966, 1219-1225  
 TOPIC TAGS: organic phosphorus compound, alkylphosphine oxide, polymerization rate, polycondensation, catalytic polymerization, heat resistant plastic, thermosetting material, phenolic plastic  
 ABSTRACT: Controversial data on the reaction of tris(hydroxymethyl)phosphine oxide (TMPO) with phenol prompted a study of the reactions of TMPO with phenol, resorcinol, and phloroglucinol. The purpose of the study was to prepare phosphorus containing polymers with increased heat and strength resistance. In the absence of a catalyst, the reaction with phenol at 160-200C yielded only a phenol-formaldehyde type resin with a low polycondensation rate because of predominant splitting of TMPO. In the presence of a BF<sub>3</sub>-phenol complex as catalyst, the rate of polycondensation was increased and at 145C in 8 hr the reaction yielded 30 wt% of an insoluble, thermosetting phenol-TMPO resin with high phosphorus content. The polycondensation rate was further increased in the reaction with resorcinol and even more so with phloroglucinol. Chemical analysis of the reaction products at various stages of polycondensation indicated  
 UDC: 541.64+678.86  
 Card 1/2

L 35857-66

ACC NR: AP6023429

a nearly total polycondensation of TMPO with resorcinol and total with phloroglucinol. Final polycondensation products with both resorcinol and phloroglucinol were insoluble thermosetting resins with nearly theoretical phosphorus content (10.9—11.4% P). Physicomechanical characteristics (Table 1) of the synthesized and hardened P-containing polymers are comparable to those of the phenol-formaldehyde resins, but their heat resistance is significantly higher. A sharp increase in deformation was observed

15 Table 1. Properties of compacted TMPO-resorcinol

Resin type	Compression strength, kg/cm <sup>2</sup>	Specific impact toughness, kg/cm <sup>2</sup>	Dielectric constant at 10 <sup>6</sup> Hz frequency	Water absorption, % in 24 hr	Heat resistance at 900°C for 5 min			
					Ignition sec.	Burning time, sec.	Flame	Coke residue, %
TMPO-resorcinol	970	5,55	4,46	0,8	7—8	20—25	Weakly smoking	52,6
TMPO-phloroglucinol	750	5,62	4,68	0,19	15—18	10—16	Light-bluish	69,1

at 260—270°C for TMPO-resorcinol resin and at 320—350°C for TMPO-phloroglucinol resin. [JK]  
Orig. art. has: 6 tables:

SUB CODE: 07/ SUBM DATE: 11Jun65/ ORIG REF: 006/ ORIG REF: 007/ ATD PRESS: 5036  
Card 2/2 126

TROSTYANSKAYA, Ye.B.; VINOGRADOV, V.M.; KAZANSKIY, Yu.N.

Molding compounds based on hardening polyesters.  
Polyester glass fibers. Plast.massy no.10:14-16

(MIRA 15:11)

'62.

(Glass fibers)  
(Esters)



L 10394-67 EWT(m) DS/RM  
ACC NR: AP7003121

SOURCE CODE: UR/0080/66/039/008/1754/1760  
20

AUTHOR: Trostyanskaya, Ye. B.; Makarova, S. B.

ORG: All-Union Scientific Research Institute of Chemical Reagents and Especially  
Pure Chemical Substances (Vsesoyuznyy nauchno-issledovatel'skiy institut  
khimicheskikh reaktivov i osobo chistyykh khimicheskikh veshchestv)

TITLE: Anion-exchange resins belonging to the class of onium compounds

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 8, 1966, 1754-1760

TOPIC TAGS: anion exchange resin, chromatography, copolymer, styrene, vinyl compound

ABSTRACT: Chromatographic separation of ions from salt solutions requires that the ion-exchange resin possess multifunctionality, a high degree of ionization in a broad range of pH values, and a high rate of establishment of equilibrium in the exchange reaction with ions of the solution. Copolymers of styrene with divinylbenzene and styrene with divinyl with various amounts of the bridge-forming component in the copolymer, were used to synthesize anion-exchange resins for a study of the influence of structure of the macromolecules upon the ion-exchange properties of the resins. The copolymers were chloromethylated, and then the chlorine atom replaced by amines, phosphines, or sulfides. Anion-exchange resins with sulfonium and phosphonium structural groups were readily decomposed in solutions of alkali; anion-exchange resins tested with ammonium functional groups acquired the structure of bases, the degree of association of which was determined by the structure of the radicals on the quaternary nitrogen. The thermal stability of the anion-exchange resins in the salt form decreased in the series ammonium > phosphonium > sulfonium compounds. The

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UDC: 661.183.123  
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L 10394-67

ACC NR: AP7003121

degree of swelling of the anion-exchange resins was determined by the structure of the bridge-forming component, with substantially greater swelling observed among anion-exchange resins produced on the basis of the styrene-divinyl copolymer. The rate of exchange of ions from salt solutions was found to be determined by the macromolecular structure of the anion-exchange resin. For styrene-divinyl polymers, ion-exchange equilibrium was established within 15 minutes, whereas the styrene-divinylbenzene anion-exchange resins were less suitable for chromatographic purposes, establishment of ion-exchange equilibrium requiring five to 20 hours. The exchange capacity varied little within the pH range 3-8. Orig. art. has: 3 figures and 3 tables. [JPRS: 38,970]

SUB CODE: 07 / SUBM DATE: 20Jul64 / ORIG REF: 005 / OTH REF: 007

Card 2/2

PHASE I BOOK EXPLOITATION

SOV/1984

International symposium on macromolecular chemistry. Moscow, 1960.

Mashinostroeniye simpozium po makromolekulyarnoy khimii SSSR, Moskva, 14-18 iyunya 1960 g.; doklady i avtoreferaty. Khimiya III. [International Symposium on Macromolecular Chemistry Held in Moscow, June 14-18, 1960; Papers and Summaries] Section III. [Moscow, Izd-vo AN SSSR, 1960] 469 p. 35,000 copies printed.

Tech. Ed.: P. S. Kashina.

Sponsoring Agency: The International Union of Pure and Applied Chemistry. Commission on Macromolecular Chemistry.

PURPOSE: This book is intended for chemists interested in polymerization reactions and the synthesis of high molecular compounds.

COVERAGE: This is Section III of a multivolume work containing papers on macromolecular chemistry. The articles in general deal with the kinetics of polymerization reactions, the synthesis of special-purpose polymers, e.g., ion exchange resins, semiconductor materials, etc., methods of analyzing polymerization reactions, properties and chemical interactions of high molecular materials, and the effects of various factors on polymerization and the degradation of high molecular compounds. No personalities are mentioned. References given follow the articles.

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126 40

(R001756730010-1)

Selected minerals from the sedimentary rocks of Uzbekistan.  
Zap. Izd. Vses. min. shch. no. 16:40-43 '64.

(MIRA 18:6)

BUTOVSKAYA, Ye.M.; KON'KOV, A.T.; NERSESOV, I.L.; PAK, V.A.;  
TROSTYANSKIY, G.D.; ULOMOV, V.I.; SOKOLOVA, A.A., red.;  
GOR'KOVAYA, Z.I., tekhn.red.

[Seismism of Uzbekistan] Seismichnost' Uzbekistana, Tashkent,  
Izd-vo Akad.nauk Uzbekskoi SSR. Vol.1. [The Fergana Valley]  
Ferganskaia dolina. 1961. 97 p. (MIRA 15:5)

1. Akademiya nauk Uzbekskoy SSR. Institut matematiki.  
(Fergana—Seismology)

SEYDUZOVA, S.S.; GROSS, I.Ch.; YESINA, A.I.; TROSTYANSKIY, G.D.

Regularities in the attenuation with distance of the density of the  
energy flow of seismic vibrations at periods of 0.3 to 0.9 seconds  
in Central Asia. Trudy Inst. mat. AN Uz. SSR no.25:133-146 '62.

(MIRA 16:8)

(Soviet Central Asia--Seismology)

*TROSZCZYNSKI J.*

TROSZCZYNSKI, J.

From the Normandy beaches.

p. 4 (Zolnierz Polski) No. 22, Oct. 1957, Warszawa, Poland

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958



Preparation of pyridine-*o*-mercapto- and -*o*-sulfo-carboxylic acids. R. Sucharda and C. Proszkiewicz. *Kozniki Chem.* 12, 403-9 (1962). - The following substances have been prepared by the action of KSH on the corresponding chloropyridinecarboxylic acids: 2-mercaptopyridine-3-carboxylic acid, m. 270°, yielding on oxidation 2-sulfo-pyridine-3-carboxylic acid, m. 285°, 3-mercaptopyridine-2-carboxylic acid, m. 181.5°, 2,2'-dicarboxy-3,3'-dipyridyl disulfide, m. 200°, yielding on oxidation the corresponding 3-sulfonic acid, m. 343°, 3-mercaptopyridine-4-carboxylic acid, m. 225°, and 4,4'-dicarboxy-3,3'-dipyridyl disulfide, m. 307-8°, giving on oxidation the corresponding 3-sulfonic acid, m. 315°.

PROCEDURES AND PROPERTIES INDEX	
<p>Preparation of pyridine-2-thiol and -sulpho-carboxylic acids. M. S. STREIBER and O. THOMAS, <i>Rec. Chim. (Paris)</i>, 1933, 12, 403-409. The following substances have been prepared by the action of KHSO<sub>5</sub> on the corresponding chloropyridine-carboxylic acids: 2-thiopyridine-3-carboxylic acid, m.p. 270°; yielding on oxidation 2-sulphopyridine-3-carboxylic acid, m.p. 285°; 2-thiopyridine-3-carboxylic acid, m.p. 189-5°; 2-thiopyridine-3:5'-dipicryl diisulphide, m.p. 296°; yielding on oxidation the corresponding 2-sulphonic acid, m.p. 345°; 2-thiopyridine-4-carboxylic acid, m.p. 245°; and 4:4'-dicarboxy-3:3'-dipicryl diisulphide, m.p. 307-308°; giving on oxidation the corresponding 2-sulphonic acid, m.p. 318°. H. W. STREIBER and O. THOMAS.</p>	
<p>ASS-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>	
<p>FROM SYNONYM</p>	<p>TO SYNONYM</p>
<p>SYNONYM</p>	<p>SYNONYM</p>

TROSZKIEWICZ, Czeslaw; GOSZCZYNSKI, Stefan

Cyclization of benzylideneacetone and  $\beta$ -methylbenzylideneacetone oximes to the quinoline nucleus. Roczniki chemii 37 no. 7/8:919-920 '63.

1. Department of Organic Chemistry, Institute of Technology,  
Gliwice.

GLINKA, Jadwiga; TROSZKIEWICZ, Czeslawa

Synthesis of quinoline nucleus by cyclization of oximes. *Rocz chemii* 37 no.12:1643-1644 '63.

1. Department of Organic Chemistry, Technical University, Gdansk.

PRAJSNAR, Bronislaw; TROSZKIEWICZ, Czeslaw

Alkylation of aromatic compounds with substituted amides  
R<sub>N</sub>HCO<sub>R</sub>' and other reactions of amides in the presence of  
POCl<sub>3</sub>. Roczniki chemii 36 no.5:853-864 '62.

1. Department of Organic Chemistry, Technical University,  
Gliwice.

PRAJSNAR, Bronislaw; TROSZKIEWICZ, Czeslaw

Structure of the benzyl group structure of the amide  
 $\text{ArCHRNHCOC}_6\text{H}_5$  and its influence upon the course of the  
benzoylation reaction of aromatic compounds. *Rocz chemii*  
36 no.5:843-851 '62.

1. Department of Organic Chemistry, Technical University,  
Gliwice.

FRAJSNAR, Bronislaw; TROSZKIEWICZ, Czeslawa

Influence of the structure of the remaining acyl group in  $C_6H_5CH_2NHCOR$  amide in the course of benzylation of aromatic compounds. *Rocz chemii* 36 no.2:265-274 '62.

1. Department of Organic Chemistry, Silesian Institute of Technology, Gliwice.



8/081/62/000/021/016/069  
B156/B101

AUTHORS: Prajsnar, Bronisław, Troszkiewicz, Czesława

TITLE: Relationship between the properties of alkylating N-benzyl-  
amides and the nature of the condensing agent

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 21, 1962, 148, abstract  
21Zh108 (Roczn. chem., v. 35, no. 6, 1961, 1635 - 1639 [Pol.;  
summaries in Russ. and Eng.] )

TEXT: When m-xylene (I) is benzylized by the action of  $C_6H_5CH_2NHCOC_6H_5$   
(II) in the presence of dehydrating and condensing substances (DCS)  
[ $P_2O_5$  (III),  $POCl_3$  (IV),  $PCl_5$ ,  $PBr_5$ ,  $PCl_3$ ,  $SOCl_2$  or  $AlCl_3$ ], products of  
mono- and dibenzylizing are only obtained when using III or IV. The by-  
products are  $C_6H_5CH_2Cl$  (V),  $C_6H_5CN$  (VI) and  $HCl$ , their formation being  
possible by the following scheme:  $II + PCl_5 \rightarrow C_6H_5CH_2N-CClC_6H_5$  (VII)  
+  $POCl_3$ ; when heated, VII decomposes to form V and VI;  $VIII + H_2O \rightarrow II + HCl$ .  
I,  $C_6H_5CH_3$  (VIII) and anisole (IX) have been benzylized by the action of  
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$C_6H_5CH_2NHCOCH_3$  (X) in the presence of IV. According to Schotten-Baumann, 30 g  $C_6H_5CH_2NH_2$  (XI) and 55 g  $C_6H_5COCl$  yield 95.3 % II, m.p. 106 - 107°C. After 25 g XI and 30 g  $C_6H_5COOH$  have been heated at 160 - 180°C for 6 hrs, the total yield of II from the melt is 79.1 %. 0.1 moles II, 100 ml I, and a corresponding amount of DCS are heated for 3 hrs at 120°C (reflux condenser; the  $P_2O_5$  is added in two batches: 35 g at the start, and a further 20 g 30 min later); when cool, it is dissociated with ice, and after a few hours 20 ml I are drawn off with the water layer, and the reaction products separated from the combined organic layers. The DCS are given, also the benzylizing products of I, the other reaction products, and the amount of recovered II in g: 55 g III, 57.3 % monobenzyl-I (XII) and 9.8 % dibenzyl-I (XIII), 5.7 g VI, -; 37 g IV, 71.5 % XII and 9.8 % XIII, 164 g V, 9.2 g VI and HCl, -; 42 g  $PCl_5$ , -, 5.76 g V, 1.59 g VI and HCl, 11.5; 90 g  $PBr_5$ , -, 44 g of a liquid substance with a boiling point of 70 - 90°C/16 mm Hg (content of VI 6.4 g, content of Br 34.7 %) and HCl, 4.2; 50 g  $PCl_3$ , -, 0.15 g V, 0.1 g VI and HCl, 14; 71 g  $SOCl_2$ , -, 1.32 g V, 1.16 g VI and HCl, Card 2/3

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13.2; 42 g  $\text{AlCl}_3$  (in toluene), solid unidentified product, -. For 3 hrs.  
25 g X, 66 g IV and 150 ml of I, VIII or IX are heated at  $120^\circ\text{C}$ ; they are  
dissociated with ice, and the products of the reaction separated (the  
initial substance and the reaction products are given): VIII, 45.6 %  
benzyl toluene (b.p.  $139 - 141^\circ\text{C}/11 \text{ mm Hg}$ ,  $n_D^{20} 1.5715$ ), 7.05 % of di-  
benzyl toluene (b.p.  $215 - 235^\circ\text{C}/11 \text{ mm Hg}$ ,  $n_D^{20} 1.5955$ ) and 11.8% V; I,  
46.1 % XII (b.p.  $157 - 158^\circ\text{C}/14 \text{ mm Hg}$ ,  $n_D^{20} 1.5697$ ), 3 % XIII (b.p.  $235 -$   
 $245^\circ\text{C}/12 \text{ mm Hg}$ ,  $n_D^{20} 1.5972$ ) and 9.4% V, b.p.  $60 - 70^\circ\text{C}/11 \text{ mm Hg}$ ; III,  
57.7 % benzyl anisole (b.p.  $157 - 160^\circ\text{C}/10 \text{ mm Hg}$ ,  $n_D^{20} 1.5773$ ) and 8.3 %  
dibenzyl anisole, b.p.  $200 - 210^\circ\text{C}/2 \text{ mm Hg}$ ,  $n_D^{20} 1.6010$ . [Abstracter's  
note: Complete translation.]

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S/081/62/000/023/034/120  
B166/B101

AUTHORS: Prajsnar, Bronisław, Troszkiewicz, Czesława

TITLE: The effect of the structure of the acyl residue of  $C_6H_5CH_2NHCOR$  amide on the course of the reaction of aromatic compound benzylation

PERIODICAL: Referativnyi zhurnal. Khimiya, no. 23, 1962, 257, abstract 232h137 (Roczn. chem., v. 36, no. 2, 1962, 265-274 [Pol.; summaries in Russ. and Eng.])

TEXT: A study has been made of the reaction of toluene benzylation by the action of  $C_6H_5CH_2NHCOR$  (Ia-k, where (a)  $R = H$ , (b)  $R = CH_3$ , (c)  $R = C_2H_5$ , (d)  $R = tert-C_4H_9$ , (e)  $R = CH_2Cl$ , (f)  $R = CCl_3$ , (g)  $R = C_6H_5$ , (h)  $R = o-NO_2C_6H_4$ , (i)  $R = p-NO_2C_6H_4$ , (k)  $R = p-CH_3OC_6H_4$ ); also by the action of N-benzyl benzene sulfonamide (II) and of N-benzyl phthalimide (III) in the presence of  $POCl_3$ . The dependence of benzyl toluene (IV) yield on the structure of the acyl residue of I-III is used to show that the reaction mechanism

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is one of electrophilic substitution. A similar reaction of Ig with  $C_6H_6$ , toluene, m-xylene, anisole and  $C_6H_5Br$  gave their mono- and dibenzyl substitutes. The reaction between Ig and  $C_6H_5NO_2$  does not go. The method of producing Ia, c, d, e has been improved and Ih was synthesized. A mixture of 25 g  $C_6H_5CH_2NH_2$  (V) and 50 ml 90%  $HCOOH$  is boiled for 30 min, the excess acid is removed by vacuum distillation, the product is Ia, yield 28.5 g, b.p. 169-172°/11 mm Hg, m.p. 63-64°C (from gasoline-benzene 4:1). A mixture of 25 g V and 70 g  $C_2H_5COOH$  is boiled for 5 hrs, 55 g of fluid is distilled off, 40 g  $C_2H_5COOH$  are added to the residue, this is boiled for a further 3 hrs, giving Ic, yield 89.2%, b.p. 180-185°C/14 mm Hg, m.p. 54-55°C (from gasoline-benzene). Id is produced by reacting 13 g tert- $C_4H_9COCl$  with 12 g V; Id is  $C_{12}H_{17}ON$ , the yield 16.5 g, m.p. 82.5-83°C (from gasoline). 25 g V is acylated in pyridine by the action of 43 g  $CCl_3COCl$  at 50°C, the mixture is diluted with water, the product is If,

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yield 40.2 g, m.p. 93-94°C (from alcohol). A mixture of 42 g o-NO<sub>2</sub>C<sub>6</sub>H<sub>4</sub>COOH and 45 g SOCl<sub>2</sub> in 150 ml C<sub>6</sub>H<sub>6</sub> is boiled for 1 hr, 80 ml of fluid is distilled off and a solution of 54 g V in 50 ml C<sub>6</sub>H<sub>6</sub> is added a drop at a time to the residue, this mixture is boiled for 20 min diluted with water and the product is Ih, C<sub>14</sub>H<sub>12</sub>O<sub>3</sub>N<sub>2</sub>, yield 72%, m.p. 124-125°C (from alcohol).

A mixture of 0.1 g mole I, 100 ml toluene and 37 g POCl<sub>3</sub> is heated for

3 hrs at 120°C, cooled, ice is added, this is then filtered and IV is extracted with toluene (the I-III are given and the yield of IV as %):

Ia, 1.65; Ib, 45.5; Ic, 25.2; Id, 48.7; Ie, 25.4; If, 0; Ig, 70.7; Ih, 60.5; Ii, 70; Ik, 61; II (P<sub>2</sub>O<sub>5</sub> instead of POCl<sub>3</sub>), 36; III, 0. A mixture of

0.1 mole Ig, excess aromatic hydrocarbon and 37 g POCl<sub>3</sub> is heated for

3 hrs at 140°C, cooled, ice is added and the appropriate mono- and dibenzyl derivatives are separated (the following table gives the aromatic hydrocarbon, quantity in g, the monoderivative produced, its yield %,

boiling point in °C/mm Hg, n<sub>D</sub><sup>20</sup>, the di-derivative produced, its yield %,

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boiling point in °C/mm Hg,  $n_D^{20}$ ):  $C_6H_6$ , 70, diphenyl methane, 38, 126-128.5/11, m.p. 26-27°C, -, dibenzyl benzene, 11.6, 218-224/12, m.p. 68-72°C, -; toluene, 80, benzyl toluene, 70.7, 140-143/12, 1.5710, dibenzyl toluene, 10, 220-235/12, 1.6002; m-xylene, 90, benzyl-m-xylene, 71.5, 148-152/11, 1.5694, dibenzyl-m-xylene, 9.1, 230-240/14, 1.5895; anisole, 100, benzyl anisole, 78, 162-165/11, 1.5769, dibenzyl anisole, 11.1, 220-240/12, 1.6010; bromobenzene, 120, benzyl bromobenzene, 22.2, 163-167/12, 1.6041 (identified by transformation by the Grignard reaction into  $p-C_6H_5CH_2C_6H_4COOH$ , m.p. 158-159°C), -, -, -, -. [Abstracter's note: Complete translation.]

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S/001/63/000/004/020/051  
B187/B102

AUTHORS: Prajsnar, Bronisław, Troszkiewicz, Czesława

TITLE: On the alkylation of aromatic compounds with substituted amides  $RNHCOR'$  and on other reactions of amides in the presence of  $POCl_3$

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1963, 242-243, abstract 4Zh132 (Rozn. chem., v. 36, no. 5, 1962, 853-864 Pol.; summaries in Russ. and Eng. )

TEXT: The following particular facts can be established about the reactions of the amides having the general formula  $RNHCOR'$  (I) with aromatic compounds (ARV) in the presence of  $POCl_3$ : (a) when  $R = (C_{nH_{2n+1}})_2-CH$  or  $R = (C_{nH_{2n+1}})_3C$ , R is easily broken off; this leads to the formation of alkylation products of the ARV, unsaturated hydrocarbons, other substitution products and corresponding nitriles. (b) when  $R = C_{nH_{2n+1}}CH_2$ , the C-N bond is considerably more stable and these amides are not subjected to deamination if they are influenced by  $POCl_3$ ; on the other hand, Card 1/7



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different reactions come about depending on the kind of acyl; e.g., in case of I ( $R = C_4H_9$ ,  $R' = C_6H_5$ ) (Ia) deacylation comes about with the formation of  $C_6H_5COCl$ . The reactions, both the alkylation and the elimination, are apparently monomolecular with the usual stage of the carbonium ion formation  $R^+$ . As regards orientation both reactions proceed according to the Zaitsev rule. Reducing 10 g of  $(CH_3)_2CHCH=NOH$  in 100 ml of alcohol with Na (50% excess) gives 40%  $(CH_3)_2CHCH_2NH_2$ , b.p.  $67-69^\circ C$ , which is benzoylated by the Schotten-Baumann method; extraction with ether and removal of the solvent yields I [ $R = (CH_3)_2CHCH_2$ ,  $R' = C_6H_5$ ] (Ib), b.p.  $170-171^\circ C/11$  mm, m.p.  $56.5-67^\circ C$ . 50 g of  $C_5H_{11}C(CH_3)_2 = NOH$  (b.p.  $98-99^\circ C/11$  mm), 55 g of Na and 38 ml of alcohol are used to synthesize 62%  $C_5H_{11}CH(NH_2)CH_3$ , b.p.  $139-142^\circ C$  in an analogous manner; I [ $R = C_5H_{11}CH(CH_3)$ ,  $R' = C_6H_5$ ] (Ic), m.p.  $70-71^\circ C$  is obtained from this by the Schotten-Baumann method (from thinned alcohol).  $(CH_3)_3COH$  (II) is benzoylated up to I [ $R = (CH_3)_3C$ ,  $R' = C_6H_5$ ] (Id). 19.3 g of

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concentrated  $H_2SO_4$  is added dropwise to 13 g of  $(CH_3)_3COH$  (II) and 19.2 g of  $C_6H_5CN$  (III) over a period of 15 minutes at a temperature of less than  $40^\circ$ ; the mixture is heated at  $40^\circ C$  for one hour, 150 g of ice are added and then 84% Id, m.p.  $133.5-134^\circ C$  are obtained (from benzene). If concentrated  $H_2SO_4$  is added to a mixture of I and II in glacial  $CH_3COOH$  at  $50^\circ C$ , the yield of Id is 72%. For other I obtained by various methods R, R', b.p. in  $^\circ C/mm$ , m.p. in  $^\circ C$  are given: cyclo- $C_6H_{11}$ ,  $CH_3$  (Ie), 160-161/15, 104-104.5; cyclo- $C_6H_{11}$ ,  $C_6H_5$  (If), -, 149-150; Ia, 181-184/13, -;  $C_2H_5CH(CH_3)$ ,  $C_6H_5$  (Ig), -, 85-86;  $C_6H_{13}$ ,  $CH_3$  (Ih), 141-142/10, -,  $n^{20}_D$  1.4459;  $C_6H_{13}$ ,  $C_6H_5$  (Ii), 212-215/23, 44-45;  $C_7H_{15}$ ,  $CH_3$  (Ik), 151-153/11, -,  $n^{20}_D$  1.4468. Cyclo- $C_6H_{11}NHSO_2C_6H_5$  (IV), m.p.  $90-91^\circ$  was also obtained. 0.1 moles of Id and 36 g of  $POCl_3$  are heated 2.5 hours at  $135^\circ$  (bath temperature) in 90 ml of M-xylol (V) (separation of  $HCl$ ), ice is added, and the non-reacted V, containing cyclohexene (VI) (yield 66%, determined by bromination),  $CH_3CN$  and 3.8% cyclohexyl-M-xylol (VII), b.p.  $130-140^\circ C/13 mm$ , Card 3/7

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$n^{20}_D$  1.5250, is separated by fractional distillation of the solution. 11.16 g of  $Br_2$  are necessary to saturate the fraction containing V. This corresponds to a cyclohexene yield of 65.6%. For analogous reactions of I with ARV in the presence of  $POCl_3$ , the initial substances, reaction conditions, reaction products (in all cases separation of  $HCl$ ) are now given: 0.1 mole If and 36 g  $POCl_3$  in 100 ml toluene,  $120^\circ C$ , 2.5 hours, 45% cyclohexane (VIII), 23% cyclohexyl toluene (b.p.  $253-255^\circ C$ ,  $136-138^\circ C/23$  mm,  $n^{18}_D$  1.5240) and 9.1 g III; 0.1 mole If and 36 g  $POCl_3$  in 100 ml V,  $140^\circ$ , 2.5 hours, 31.4% VIII, 35.6% VII (b.p.  $135-139^\circ C/12$  mm,  $n^{18}_D$  1.5253) and 8 g III; 0.1 mole If and 36 g  $POCl_3$  in 100 ml anisole (IX),  $140^\circ C$ , 2.5 hours, 8.3% VIII, 67.8% cyclohexyl anisole (X) (b.p.  $141-143^\circ/11$  mm,  $n^{18}_D$  1.5330; on letting it stand for a while, 1.42 g p-X, m.p.  $58-59^\circ C$  settle; When the filtrate is cooled down to  $-10^\circ$ , o-X is separated, m.p.  $265-270^\circ C$ ,  $n^{20}_D$  1.5305 together with 7.29 g III; 11.45 g Ic and 18.5 g  $POCl_3$  in 50 ml IX, 3 hours,  $140^\circ C$ , 76% III, 53.5% (1-methyl hexyl)-

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anisole ( $C_{14}H_{22}O$ , b.p.  $133-136^{\circ}C/11$  mm,  $n^{20}_D$  1.4970) and a certain amount of an unsaturated compound; 20.3 g If and 25 g  $POCl_3$ , 1 hour,  $150-160^{\circ}C$  (bath temperature) with distillation of the reaction products, 73% VI (b.p.  $81-82^{\circ}C$ ), a certain amount of III and chloro cyclohexane; 21.9 g Ic and 30 g  $POCl_3$ , as in preceding case; 67.4% heptene-2 (b.p.  $97-100^{\circ}C$ ,  $n^{20}_D$  1.4043; oxidation with  $KMnO_4$  leads to  $C_4H_9COOH$ , b.p.  $180-185^{\circ}C$ ; anilide, m.p.  $60-61^{\circ}$ ) a certain amount of III and 0.3 g  $C_5H_{11}CHClCH_3$  (b.p.  $142-146^{\circ}C$ ,  $n^{20}_D$  1.4273); 17.7 g Ig and 36 g  $POCl_3$  in  $POCl_3$  in 90 ml V, 3 hours,  $120^{\circ}C$  (bath temperature), 64.5% butene-2 (distilled off during the reaction and absorbed in a solution of  $Br_2$  in  $CCl_4$ );  $(CH_3CHBr)_2$ , b.p.  $154.5-157^{\circ}C$ ,  $n^{20}_D$  1.5104), 82% III and 6.8% sec-butyl-M-xylene (b.p.  $190-200^{\circ}$ ,  $n^{20}_D$  1.4975); 17.7 g Id and 36 g  $POCl_3$  in 100 ml toluene as in preceding case, 57.8% isobutylene absorbed in a solution of  $Br_2$  in  $CCl_4$ ;  $CH_2BrCBr(CH)_3C_2H_5$ , b.p.  $148-152^{\circ}C$ ,  $n^{20}_D$  1.5112), 77.5% III and 18% tert-  
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butyl toluene (b.p. 190-196°C,  $n_D^{20}$  1.4940); 17.7 g Ia and 36 g POCl<sub>3</sub> in 100 ml toluene, 3 hours, 120°C, as before 2.4 g C<sub>6</sub>H<sub>5</sub>COCl (b.p. 50-80°C/14 mm; anilide, m.p. 161-162°C), 14 g of the initial substance Ia (b.p. 186-188°C/14 mm,  $n_D^{20}$  1.5360) and 2.2 g of a substance which dissolves in concentrated H<sub>2</sub>SO<sub>4</sub>; 17.7 g Ib and 36 g POCl<sub>3</sub> in 100 ml V, 3 hours, 140°C, as before, 18% III, 6.8 g of the initial substance Ib (b.p. 165-175°C/13 mm, m.p. 56-57°C (from benzene)) and 2.3 g of a substance soluble in concentrated H<sub>2</sub>SO<sub>4</sub>; 20.5 g I and 36 g POCl<sub>3</sub> in 100 ml toluene, 3 hours, 120°C (in the bath), 13.8 g of the initial substance II (b.p. 200-210°C/16 mm, m.p. 44-45° (from benzene)) and 5 g of a substance soluble in concentrated H<sub>2</sub>SO<sub>4</sub>; from the reaction of Ih, k with POCl<sub>3</sub> in toluene (3 hours, 120°C) no particular substances are obtained; in an analogous reaction between 11.9 g IV and 18 g POCl<sub>3</sub> in 50 ml V (3 hours, 140°C) HCl is separated; 7.1 g of the initial substance IV are obtained, but alkylation products of V cannot be established. If POCl<sub>3</sub> is replaced

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by 30 g  $P_2O_5$ , 20% VI are separated; at 120°C, 13.2% VI and 45% IV are obtained. [Abstracter's note: Complete translation.]

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B187/B102

**AUTHORS:**

Prajsnar Bronisław, Troszkiewicz Czesława

**TITLE:**

Influence of the benzyl group structures of the amides  $X-C_6H_5-CH_2-NH-CO-C_6H_5$  on the course of the benzylation of aromatic compounds

**PERIODICAL:**

Referativnyy zhurnal. Khimiya, no. 4, 1963, 241-242, abstract 4Zh131 (Roczn. chem., v. 36, no. 5, 1962, 843-851 Pol.; summaries in Russ. and Eng. )

**TEXT:** In order to study the influence of the structure of the  $ArCH(R)-$  group on the course of the reaction when aromatic compounds are subjected to benzylation with amides of the general formula  $ArCH(R)NHCOC_6H_5$  in the presence of  $POCl_3$ , toluene alkylation reactions were investigated under the influence of 2-R-3-R'-4-R'' $C_6H_2CH_2NHCOC_6H_5$  (Ia, b, c, d where (a)  $R=R''=H$ ,  $R'=C_2H_5O$ ; (b)  $R=C_2H_5O$ ,  $R'=R''=H$ ; (c)  $R=R'=H$ ,  $R''=C_2H_5O$ ;

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Influence of the benzyl group ...

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(d)  $R=R'=H$ ,  $R''=NO_2$ ) and  $C_6H_5CH(R)NHCOC_6H_5$  (II, where  $R = C_2H_5$ ) (IIa) as well as alkylation of benzene under the influence of II ( $R=C_6H_5$ ) (IIb). Under the influence of  $POCl_3$ , the opening of the C-N bond and the breaking off of the  $C_2H_5OC_6H_4CH_2$ -group in the cases Ia, b, c take place easily with a high yield of  $C_6H_5CN$  (III). On the other hand, the  $C_2H_5O$  group decreases the yield of benzylation products of toluene, especially in case of its ortho or para position in which it is linked with the  $CH_2$ -group. At the same time, it increases the relative yield of dibenylation products for the reaction with Ia (apparently a mixture of 3-(3'- $C_2H_5O-C_6H_4CH_2$ )-4- $CH_2C_6H_3CH_2C_6H_5$  and 2-(3'- $C_2H_5OC_6H_4CH_2$ )-5- $C_2H_5OC_6H_3CH_2C_6H_4CH_3$ -4"). The  $NO_2$ -group counteracts the breaking off of the 4- $NO_2C_6H_4CH_2$ -group so strongly that the main reaction product obtained is the initial substance Id. The  $C_6H_5$ -group in IIb promotes the course of the benzylation reaction to a high degree compared with the  $C_2H_5$ -group in IIa. When the latter was used,

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unsaturated hydrocarbons were found in the reaction products. 66 g 3-C<sub>2</sub>H<sub>5</sub>OC<sub>6</sub>H<sub>4</sub>CHO (IV) (b.p. 117-119°C/11 mm) are boiled in 300 ml alcohol and a solution of 85 g NH<sub>2</sub>OH·0.5 H<sub>2</sub>SO<sub>4</sub> in 300 ml of water and neutralized Na<sub>2</sub>CO<sub>3</sub> for one hour, 200 ml of the solvent are driven off, 300 ml water are added and the oxime of IV is separated (IVa), C<sub>9</sub>H<sub>11</sub>NO<sub>2</sub>, m.p. 60-61°C (from benzene). 70 g of metallic Na is as quickly as possible added to 60 g of IVa in 550 ml of absolute alcohol, the mixture is boiled for about 2 hours, 200 ml of water are added gradually, about 500 ml of the distillate are driven off with steam and from the rest is extracted with ether giving: 90% 3-C<sub>2</sub>H<sub>5</sub>-OC<sub>6</sub>H<sub>4</sub>NH<sub>2</sub> (V), b.p. 120-122°C/13 mm, n<sub>D</sub><sup>20</sup> 1.5303; hydrochloride (ChHt), C<sub>9</sub>H<sub>14</sub>ClNO, m.p. 134-135°C (from dioxane); picrate (PK), m.p. 178-179°C; acetamide (AD), C<sub>11</sub>H<sub>15</sub>NO<sub>2</sub>, b.p. 197-198°C/3 mm, m.p. 5-61°C (from benzene). 60 g C<sub>6</sub>H<sub>5</sub>COCl are added dropwise to the weighed quantity of 40 g V in 300 ml of 10% NaOH. This gives 69 g of Ia, C<sub>16</sub>H<sub>17</sub>NO<sub>2</sub>, m.p.

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56-57°C (from benzene-gasoline). The synthesis of I is analogous (specifications are I, empirical formula, m.p. in °C): b,  $C_{16}H_{17}NO_2$ , 100-100.5 [2- $C_2H_5OC_6H_4NH_2$ , yield 76%, b.p. 119-122°C/14 mm,  $n_D^{20}$  1.5294; ChHt,  $C_9H_{14}ClNO$ , m.p. 164-165°; PK, m.p. 197-198°; AD,  $C_{11}H_{15}NO_2$ , m.p. 85-86°]; b,  $C_{16}H_{17}NO_2$ , 98-99 (4- $C_2H_5OC_6H_4NH_2$ , yield 80%, m.p. 128-129°C/15 mm), and also IIb, m.p. 108-109°C [ $C_6H_5-CH(C_2H_5)NH_2$ , b.p. 94-95°/19 mm]. A Schotten-Baumann reaction on 4- $NO_2C_6H_4CH_2NH_2$  yields Ig, m.p. 155.5-156°C (from alcohol). To 0.1 moles of  $(C_6H_5)_2CHOH$  and 0.1 moles of III in 60 ml of glacial  $CH_3COOH$ , 11 g of concentrated  $H_2SO_4$  are added dropwise at 45°C in the course of 20 minutes, the mixture is heated to 45°C for 1 hour and then poured into 300 ml waterice mixture. This gives 91% IIa, m.p. 171-172° (from alcohol). 22 g of Ia, b, c, 90 ml of toluene and 33.5 g of  $POCl_3$  are heated at 120°C for 3 hours; 1.69-1.74 moles of HCl are separated per mole of I; ice is added and the procedure described in the preceding paper (RZhKhim, 1960, no. 7, 26566) is carried out; the following substances

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separate (specifications are I, monoalkylation product, empirical formula, yield in %, b.p. in °C/mm, yield of III in %, residue in g): Ia, tolyl-(3-ethoxyphenyl methane,  $C_{16}H_{18}O$ , 43.5, 180-182/13, 1.5625, di-(3-ethoxybenzyl)-toluene,  $C_{25}H_{28}O_2$ , 20.8, 265-270/12, 88.4, 3; Ib, tolyl-(2-ethoxyphenyl)-methane,  $C_{16}H_{18}O$ , 15, 169-172/12, 1.5595, di-(2-ethoxybenzyl)-toluene,  $C_{25}H_{28}O_2$ , 16.1, 220-226/1, 92, 9. Ic gave 2 g of a mixture of monoalkylation and dialkylation products, b.p. 160-240°/mm, 89% III and 7.3 g of residue. 19.2 g of Id, 90 ml of toluene and 28 g of  $POCl_3$  are heated at 120°C for 3 hours; after ice has been added, 17.1 g of the initial substance Id separate; distillation effects the separation of 9% III and 1.3 g of a substance having a m.p. of 170-200°C/13 mm, from which 0.5 g of 4- $NO_2C_6H_4COCl$ , m.p. 69-70°C, can be separated (from alcohol). 18.3 g of Iib, 80 ml of  $C_6H_6$  and 24 g of  $POCl_3$  are heated at 120°C for 4 hours; after ice has been added, 4 g of  $(C_6H_5)_3CH$  (VI), m.p. 79-82°C, are separated (from alcohol); distillation gives: 78% III, b.p. Card 5/6

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74-78°C/14 mm, 4.4 g of a mixture consisting of 13%  $(C_6H_5)_2-CHCl$  and 87% VI (total yield of VI 50.5%) and 3-5.4 g of residue, from which 29% 1.4- $[(C_6H_5)_2CH]_2C_6H_4$ , m.p. 164-165°C are separated (from glacial  $CH_3COOH$ ). 23.8 g of IIa, 100 ml of toluene and 37 g of  $POCl_3$  are heated at 120°C for 3 hours; in the toluene solution the presence of 16.1% of an unsaturated compound (calculated with respect to  $C_6H_5CH=CHCH_3$ ) is determined by means of 2.575 g  $Br_2$ ; distillation gives 80% of III; bromination with a solution of  $Br_2$  in  $CCl_4$  yields 1.5 g of  $C_6H_5CHBrCHBrCH_3$ , m.p. 64-65°, (from alcohol).  $C_{16}H_{18}$ , yield 45.2%, b.p. 160-166°C/12 mm,  $n_D^{20}$  1.5682 is separated from a higher fraction (9.5 g), b.p. 160-170°C/13 mm, ethylphenyl-n-tolyl methane. Oxidizing the higher fraction with  $Na_2Cr_2O_7$  in  $CH_3COOH$  gives 4- $C_6H_5COC_6H_4COOH$ , m.p. 190-192°C. [Abstracter's note: Complete translation.]

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New method of synthesis of quinoline nucleus by cyclization of oximes. *Rocz. chemii* 36 no.9:1387-1388 '62.

1. Department of Organic Chemistry, Silesian Institute of Technology, Gliwice.

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Unification and standardization of cranes and the economic results. Przegl techn [84] no.44:5,6 4 N '62.

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Technical progress in the construction of cranes. p.161

PRZEGLAD MECHANICZNY. (Stowarzyszenie Inzynierow i Technikow Mechanikow Polskich)  
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1ST AND 2ND ORDERS																										3RD AND 4TH ORDERS																									
PROCESSES AND PROPERTIES INDEX																																																			
<p>2A</p> <p>New semimicro method for determining carbon and nitrogen in organic compounds. B. Suchanek and C. Truszkiewiczowa. <i>Ročník Chem.</i> 18, 784 (1963) (German, 790) (1963).—The method is based on oxidation with <math>MnO_2</math> in <math>H_2SO_4</math>. Special app. for this purpose is designed. M. Wojciechowski</p>																																																			
<p>ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>																																																			



1ST AND 2ND COLUMNS										PROCESS AND PROPERTIES INDEX										3RD AND 4TH COLUMNS									
<p>EC</p> <p>Centigrade Method of determining carbon and nitrogen in organic compounds. E. NUGMADA and C. TACANAWINDOHA (Rosa. Chem., 1938, 18, 784-797). The material is oxidized with <math>\text{MnO}_2</math> in <math>\text{H}_2\text{SO}_4</math> in a stream of <math>\text{O}_2</math>, and the reaction gases are passed successively through <math>\text{H}_2\text{SO}_4</math>, layers of heated pumice-<math>\text{CuO}</math> and <math>\text{FeCrO}_4</math>, <math>\text{CaCl}_2</math>, and a weighed soda-lime tube, the increase in wt. of which is determined. The N content of <math>\text{NH}_3</math>, <math>\text{NH}_4</math>, and <math>\text{CN}</math>-compounds is determined by Kjeldahl distillation of the residual <math>\text{H}_2\text{SO}_4</math> solution. <math>\text{AsO}_3</math> and <math>\text{NO}_2</math>-compounds are reduced with <math>\text{Fe}</math> in <math>\text{H}_2\text{PO}_4</math> before combustion.</p> <p>R. T.</p>										<p>u-3</p>										<p>COMMON VARIABLE INDEX</p>									
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